

users with compelling evidence of the utility and impact of technology-enhanced methods and made them more likely to try the same and other technologies in their regular classrooms. Virtual course experiences also encouraged teachers to reflect on their teaching and communication strategies with students and work to develop more effective methods and procedures for their in-person classes. Another interesting finding from this study was the realization of a new empathy and sensitivity to student needs, a willingness to relate to all students, virtual and FTF, on their own terms. These findings, especially if confirmed by additional research in other virtual school settings, have implications for teacher preparation and for building a rationale to emphasize training in and use of online technologies. If they are to take advantage of the unique and powerful capacity of these technologies to encourage reflection and build stronger connections between students and instructors, teachers must be taught how to design online activities in ways recommended by Rice (2006), Treacy (2007), and others.

### **Implications for Teacher Preparation in Virtual Methods**

The growing influence of virtual schooling in the U.S. and the acknowledged methodological differences between virtual and FTF teaching have already been great enough to spark interest in including it as an area of emphasis in teacher preparation programs (Davis & Roblyer, 2005; Davis, et al., 2006; Harms, Niederhauser, Davis, Roblyer, Gilbert, 2006). The potential for more pervasive, reform-minded impact on educational quality seems to bolster this interest (Watson & Ryan, 2007). Findings such as those from the current study offer yet another compelling reason for including virtual teaching methods and experiences as a required competency area in teacher preparation programs. Virtual clinical experiences and internships may give preservice teachers more than job skills in an area of burgeoning interest to potential school employers. These experiences may have the effect of illustrating in the most compelling way possible how useful and powerful technologies can be in reaching out and engaging students with diverse needs and abilities.

### **Implications for Building a Rationale for Technology Emphasis**

Building a rationale for technology use in K–12 classrooms has traditionally been problematic, in part because of the lack of a strong research base on pedagogical benefits, and in part due to a school and teacher culture resistant to “disruptive” innovative methods (Christiansen, 2008; Cuban, Kilpatrick, & Peck, 2001; Roblyer & Knezek, 2003). However, the adoption of technologies by individual educators may become less important as some states and school systems, recognizing the social and economic benefits of these technologies, decide to require them on a system-wide basis. For example, state-level decision makers in at least two states (Alabama and Michigan), recognizing the need for students to become more literate in the skill set and habits required for effective virtual learning, have passed new graduation requirements for students to take an online experience or course (Alabama Department of Education, 2008; Michigan first to mandate online learning, 2006). This trend, in combination with the increasing national popularity of virtual schooling as a way to give underserved students access to educational opportunities that are not otherwise available (Watson & Ryan, 2007), seems likely to drive the need for teacher education programs and faculty capable of preparing an increasing number of teachers who are “online instruction literate.” The results of the current study indicate that, although use of educational technologies may be increasing due to social and economic reasons, this increased use has the effect of demonstrating the pedagogical benefits of these technologies and their unique role in informing better teaching practice.

### **Limitations of the Study**

Though results from the study are intriguing, it should be noted that findings from early, small-scale studies such as this one must be viewed

as preliminary. In light of the dramatic differences in teacher training and instructional practice among virtual school programs, it may be that this two-way flow of information from one delivery format to another, as well as the specific types of impact observed here, are more common in some programs than others. The numbers in the current study also clearly limit both the overall conclusions we are able to make and their generalizability to other programs. Further studies are needed to confirm the phenomenon itself, to clarify what types of impact can be expected to occur in various kinds of environments, and to explain why this impact occurs.

### **Implications for the Future**

Findings such as those from the current study offer good directions for further research on virtual teaching benefits, as well as a vantage point for viewing the emerging future of both technologies in education and, most intriguing, of education itself. If further research shows the results reflected in this study to be widespread, and these benefits can be translated into areas of new emphasis for teacher education programs, the benefits of virtual schooling may extend far beyond redefining what it means to be “in school” and help define what it means to be an effective teacher.

By navigating the unfamiliar, challenging, and changeable terrain of virtual learning, teachers can travel beyond their past teaching and learning experiences and view their teaching practices with fresh eyes. Participating in this novel teaching environment, so different in many ways from the traditional classrooms they have known, could give them opportunities to see the impact of new approaches to familiar content; they become empowered with the perspective that educational philosopher Maxine Green (1973) advocated: to become as “strangers” in their own classrooms, able to see their teaching strategies as if it were the first time and engage in the reflective practice (Henderson, 2001) that informs their development as professionals. They may gain the insight that great teaching—in any delivery format—means always trying new strategies and learning from the results, always engaging in “continuous growth and rediscovery” (Zacharias, 2004, p. 1).

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